

APPENDIX I

Reference Table 1

		ester name	alcohol component		catalyst	Properties of esters										Heat stability	Long-term hydrolysis stability
			peroxyde value	carbonyl value		Hazen color number	1)total acid number	2)sulfated ash content	3)sulfur content	4)phosphorus content	5)peroxide value	6)carboxyl value	7)Volume resistivity	8)hydroxy value	9)Water content		
example	I - 1	Diisobutyl 4-cyclohexene-1,2-dicarboxylate	0.2	0.3	tin hydroxide	10	0.01	1	<1	<1	0.3	0.8	$8.6 \times 10^{11}$	0.2	16	0.53	0.83
	I - 2	Di(2-ethylhexyle) 4-cyclohexene-1,2-dicarboxylate	0.1	0.2	tin oxide	10	0.01	<1	<1	<1	0.2	0.5	$9.5 \times 10^{11}$	0.8	12	0.48	0.72
	I - 5	Diisodecyl 4-cyclohexene-1,2-dicarboxylate	0.8	0.5	tin oxide	20	0.01	1	<1	<1	0.6	1.2	$8.9 \times 10^{13}$	0.2	25	0.7	0.83
comparative example	I - 1	Diisobutyl 4-cyclohexene-1,2-dicarboxylate	1.3	18.1	p-toluenesulfonic acid	120	0.01	<1	22	<1	6.4	15.2	$3.2 \times 10^{10}$	0.5	20	3.82	14.82
	I - 2	Diisobutyl 4-cyclohexene-1,2-dicarboxylate	0.2	0.3	p-toluenesulfonic acid	20	0.01	<1	25	<1	0.2	0.6	$3.9 \times 10^{10}$	0.3	13	2.99	10.27
	I - 3	Di(2-ethylhexyle) 4-cyclohexene-1,2-dicarboxylate	0.7	4.8	phosphoric acid	100	0.01	<1	<1	32	1.3	3.9	$3.1 \times 10^{10}$	1.2	33	3.16	7.56
	I - 4	Diisodecyl 4-cyclohexene-1,2-dicarboxylate	1.8	3.9	tin oxide	70	0.02	2	<1	<1	5	7.6	$4.1 \times 10^{12}$	0.4	27	1.51	3.38
content of claims			<=1.0		absent or sulfur free and phosphorous free		<=0.05	<=10	<=20	<=20	<=1.0	<=10	>=1.0x10 <sup>11</sup>	<=3	<=100		

